2005-01-05

Underwater Warhead Technologies

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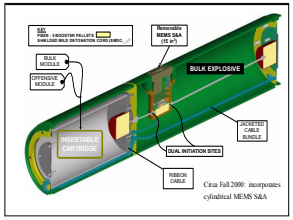
Resume

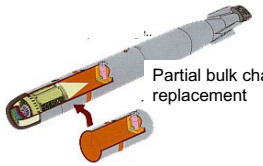
Underwater Warhead Technologies

Sea Shield: Neutralization of Littoral Open Ocean Submarine Threats

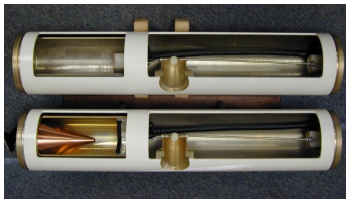
Concept for Expanding ATT Capabilities

Model of Baseline Quick Reaction 6.75 ATT Defensive Torpedo





Partial bulk charge replacement



Experimental Model

Operational Payoff/Transition Targets:

- Detonation merging shown to increase explosive power by ~100%, allowing the use of high bubble energy explosives for dual directed energy and blast effects. Feasibility of reactive material jet/penetrators shown. Results directly applicable to ATT: Add-on low-cost shaped charge offensive capability.
- Transition team: NAVSEA PM404, NSWC-Indian Head, APL Penn State.

Deliverables: Reports, software, processes

Technical Objective

Demonstrate affordable warhead concepts for the family of next generation of torpedo systems.

Technology Challenges

Agile precision strike and complex nature of the threat requires enhanced performance at reduced warhead size.

Technical Approaches:

Novel means for amplifying explosive power and incorporating reactive materials for improving shaped charge performance, and enhancing the directionality of underwater blasts. Optimizations for systems applications continuing with planned demonstrations.

Cost and Schedule of Major Team Follow-ons:

6.2 Experimental Demonstrations:

Enhanced Blast	2005-6	$100K
Hi-Energy HE Ampl	2005-7	$250K
Reactive Jetting	2006-8	$500K

6.3b/6.4 ATT Offensive Module Development :

ATD	2008-9	$3M
EMD	2010-12	$15M

Student Involvement:

- T-C. Phua (12/02)
- T. Moore (03/03)
- A. Biesterveld (06/04)
- M. Kulawiak (06/04)
- L. Glosby (12/04)

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